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AUTHOR Morrison, James L.; Morrison, Pamela P.
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ABSTRACT

An experiment in problem-solving was conducted in which one group of students used computer conferencing for continual public exchanges of ideas through asynchronous meetings, and another group used class discussion groups, while attempting to solve a legal problem in a course in consumer law. Student success rates for solving the assigned problem were similar. Based upon data collected, four parameters were identified as critical to integrating computer conferencing as an instructional strategy: (1) precise problem definition; (2) intensive preliminary training; (3) pacing student inputs/outputs; and (4) redistributing class time. The role of the classroom instructor was perceived as entirely different by members of each group. The mean scores and probabilities of student perceptions in each group are displayed in a table. (Author/ALF)

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INTEGRATING CONTROVERSY SKILLS INTO COMPUTER CONFERENCING: PARAMETERS FOR INSTRUCTIONAL MODEL BUILDING

by

Dr. James L. Morrison
University of Delaware

Dr. Pamela P. Morrison
Goldey-Beacom College

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ABSTRACT

An experiment in problem-solving was conducted in which one group of students used computer conferencing and another, class discussion groups while attempting to solve a legal problem in a course in consumer law. Student success rates for solving the assigned problem were similar. Based upon data collected, four parameters were identified as critical to integrating computer conferencing as an instructional strategy. These are: (1) precise problem definition; (2) intensive preliminary training; (3) pacing student inputs/outputs; and (4) redistributing class time. The role of the classroom instructor was perceived as entirely different by members of each group.

One of the most adventurous types of conferencing becoming more readily available to academicians is what may be labeled as many-to-many interactive communication by means of a computer. This interactive learning strategy enables an individual as part of a large group of users to keyboard messages at personal computers located at varying on-campus and off-campus locations. These comments may be filed centrally by means of a host-mainframe, thus enabling individuals to share ideas openly in a public forum. By adopting such an interactive strategy, individuals are capable of entering into dialogue with others while eliminating the barriers of time and space.

Alex Cruz (1992) of American Airlines Decision Technologies describes computer conferencing as a mechanism that enables individuals to communicate with one or more people through a computer that is connected to a network of other computers. Edward Yarrish (1992) describes computer conferencing as being somewhat different from electronic mail. Whereas electronic mail customarily results in private communication between two individuals, computer conferencing adds the dimension of continual public exchanges of ideas through asychronous meetings. In this regard, Yarrish categorizes computer conferencing as different time/different place technology in contrasting it to same time/same place learning environments typical of the more traditional classroom discussions found in today's educational institutions.

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Experiment Conducted

An instructional experiment was conducted for the purpose of comparing student perspectives when utilizing traditional classroom discussion or computer conferencing as an interactive learning mechanism when debating a legal controversy. The focus of learning was upon having undergraduates apply prior learnings while thinking critically when recommending a public policy related to product safety in the marketplace.

During the experiment in a consumer law course, 48 undergraduates were divided into two learning groups with a control group of 24 students utilizing traditional class discussions and an experimental group of 24 students participating in a computer conference. Each group was given the identical charge of selecting and defending an alternative for solving what was presented as a product liability crisis in the marketplace. Members of the experimental group accessed personal computers using CONVENE software marketed by IBM for use on the IBM3090-E mainframe. Positions taken by the experimental group were forwarded by email to the instructor. For the control group, positions were presented in written format.

Data was collected by means of questionnaires completed at the conclusion of the 2-week experiment. Using a 5-point rating scale where a 5 rating indicated a strong agreement with a statement provided and 1, strong disagreement, students indicated their perceptions as to specified aspects of the instructional strategy to which they were subjected.

Findings of Study

The findings indicate that undergraduates in both the control and experimental group perceive similar occurrences in terms of degree of helpfulness, risk taking, maneuvering, dealing with large number of comments, determining significance of comments made, and the degree of difficulty in formulating final positions (Table 1). However, there was a significant difference in the perceptions of students between the control and experimental group as to the role undertaken by the instructor during the actual debate.

Delivery of education through computer communication alters the relationship between the instructor, student, and the course content. Unlike traditional classroom instruction in which the educator generally leads in discussion, prompts responses, and paces the class, computer conferencing is more student-centered with less instructor involvement. The mean score of 2.875000 on the part of the experimental group indicates that students generally disagreed with the statement that they found it necessary to rely upon the classroom instructor for leadership and direction. However, the mean score of 3.625000 reveals that students in the control group were more in agreement with the need to seek and get instructor support.

Table 1
MEAN SCORES AND PROBABILITIES OF STUDENT PERCEPTIONS OF OCCURRENCES BY STUDENT GROUP

Occurrence	Mean Exp. Grp	Mean Control Grp	T-Score	Prob.
Others influenced my thinking	3.708333	3.833333	-0.595	.55
Comments generally repetitive	3.500000	3.296667	0.7468	.45
Difficult to keep track of comments	3.166667	2.875000	1.0579	.20
Like to take risk expressing myself	3.083333	3.125000	-0.1259	.90
Used readings identified by others	3.541667	3.416667	0.4248	.67
Necessary to meet outside of class	2.666667	3.125000	-1.5235	.13
Was candid when interacting	3.416667	3.333333	0.2851	.77
Difficult to make comments	3.083333	2.625000	1.4728	.14
Easy to interpret sign. of comments	3.625000	4.125000	-1.6262	.11
Willingness to share ideas	3.916667	3.750000	0.7938	.43
Relied upon Inst. for Guidance	2.875000	3.625000	-2.0180	.05**
Computer Conf/ Disc. Helpful	3.750000	4.00000	-1.0000	.32

**Significance at .05 level of confidence

The findings also indicated that both the control (mean score of 4.00000) and experimental (mean score of 3.75000) groups found their instructional strategy (whether traditional class discussion or computer conferencing) to be helpful for gaining data and support for defining their own position in terms of the legal controversy under debate. Both groups appeared to be candid with their remarks and also agreed that they did not find it necessary to meet with others outside of class for getting assistance in arriving at a position (Table 1).

Parameters for Instructional Model Building

Several qualitative findings are worthy of note in terms of conducting students through computer conferencing activities. Since both the control and experimental groups generally succeeded in defining and

defending a position that was documented for credibility, it appears that group-oriented learning has considerable merit. However, the role of the instructor may be characterized as somewhat different for that of computer conferencing. In this regard, four parameters were identified which may be identified as significant when structuring a computer conference with the purpose of generating input and exchange of dialogue among all the participants.

1. Structuring the Problem-Solving Situation. The problem utilized as a focus of study should be quite specific and one in which much has been written in the literature. By focusing upon an existing controversy, students are able to relate findings to their own welfare, which is important to giving credibility to the process. Therefore, guidelines as to labeling comments with communicative titles, generating ideas within specified comment lengths, and documenting thoughts through references to current literature are most critical toward bringing order to what could easily become chaotic in terms of information overload (that is, rambling comments that never seem to end). Structuring comments within strict limits reduces the length of time students are keyboarding, reading, and recalling prior exchanges.

2. Student Preparation. The technical idiosyncrasies associated with maneuvering within a computer conference have a tendency to misdirect the student's attention to the task at hand. Therefore, it is suggested that students require "substantial" prior practice in accessing, maneuvering, and organizing thoughts through electronic dialogue. Because of the technical nature of computers, computing support staff must be readily available to assist users through the "pitfalls" of computing (especially editing sequences). In this experiment, students were required to complete a three-hour, one-week training period followed by a "practice controversy" in which each participant entered into dialogue by initiating ideas and reacting to comments of others.

3. Pacing Student Involvement. In order to assure that students did not wait until the last minute to participate in the conference, specific deadlines were established by which comments had to be entered/responded to throughout the 2-week experiment. A minimum requirement of 6 comments per week was established--two per day reflecting traditional class meetings--in order to convey the importance of helping others along a continual paradigm. In addition, the length of comments was restricted to no more than 2 computer screens. It should be noted that a vast majority of students met the minimum criteria for participations over the debate conducted during the experiment.

4. Redistributing Class Time. Undergraduates participating in the computer conference were excused from traditional class meeting over the two-week period. However, 6 classes were held with the control group using a class discussion format whereas those in the

computer conference were required to enter two comments per class day but within a time frame of 6 a.m. to 12 midnight. Therefore, each group did not interact with one another and the computer conference was considered a substitute for class meetings.

Significance of Experiment

It is worthy to note that with computer conferencing, the classroom instructor has an additional responsibility of providing a learning structure that enables students to work out a problem, search for strategies on their own, and evaluate their solutions. The computer conference enables the teacher to fulfill the role as an observant with the primary focus upon having student adapt individual thinking processes for analyzing and synthesizing thoughts into a logical conclusion. The role assumed by the instructor may be described as being alert for misinterpretations on the part of participants and immediately correcting them to allow participants to proceed without unnecessary delays or distractions.

During a computer conference, each participant finds himself/herself in a role of having to participate. Such an occurrence is not necessarily true in the traditional classroom discussion. In face-to-face exchanges, some students may have little opportunity to participate. Personality appears to become less important in computer conferencing than in traditional classroom debating processes.

The findings of the experiment give credibility to the argument that students should be rewarded for posing new alternatives, for changing their positions when the evidence is substantial, and for arriving at an informed decision reflecting advanced problem-solving skills. Therefore, the learning process itself becomes the focus of attention--and not necessarily any one particular solution to a controversy.

If computer conferencing is adopted, the result is a redistribution of class time in that student involvement moves from that of primarily interacting in a controlled classroom environment to that of a campus perspective whereby library resources and computing capabilities are integrated into a learning network. Therefore, in this respect, it is the promoting and managing of controversy constructively that requires students to think out their ideas thoroughly, to gather additional information when circumstances suggest a need, and to sequence prior learnings into a logical order for final presentation. In this regard, computer conferencing has considerable merit as a learning strategy.

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